

COVID-19 Infection – Case and Contact Investigation

CASE AND CONTACT INVESTIGATION

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1 Data Collection and System

Case investigation: Complete using CREST (Case Risk and Exposure Surveillance Tool), WDRS (Washington Disease Reporting System), or an alternative method. Beginning November 30th, 2020, use the short form for all case investigations.

Use of CREST is preferred. If a system other than the CREST is used, all essential variables are required to be entered or imported into WDRS within 24 hours of completing the case interview.

Paper-based DOH COVID-19 form is available.

(<https://www.doh.wa.gov/Portals/1/Documents/5100/420-110-ReportForm-COVID19.pdf>)

Ensure case data is entered or imported into WDRS as Coronavirus case and the Disease as COVID-19.

Contact investigation: Complete using CREST.

As feasible, identify close contacts and collect key variables including identifiers, contact information, occupation, etc. and assess for symptoms for each contact. If this is done, data should be entered or rostered into the CREST within 24 hours of completing the contact interview.

2 Case Investigation

CDC's initial guidance of developing a COVID-19 Case Investigation & Contact Tracing Plan (available here: <https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/overview.html>) was revised with a prioritization plan for high burden jurisdictions, which in late November, 2020, included all states due to surges in cases:

<https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/prioritization.html>. The goal is targeting identification of higher risk events with potential for extensive transmission. Prioritize investigation of people who had positive specimens collected, were diagnosed with, or were exposed to COVID-19 in the past 6 days. As necessary for further prioritization, can start with cases having specimens collected within the past 4 days.

Refer to **Table 1** below for summarized recommendations.

2.1 Confirmed and Probable Cases

Initiate case investigation within 1 day of notification for confirmed and all probable cases.

Process:

- Prioritize investigation of cases who are:
 - Specimen collected, diagnosed or exposed in the past 6 days

- At increased risk for severe illness
- Part of a cluster of illnesses, particularly in a congregate setting, or a single case in a high-risk setting (e.g., hospital, food-processing plant, long-term care, mental health, rehab, school, dialysis unit, corrections, shelter). See: [Public Health COVID-19 Guidance: Non-Healthcare Workplaces in Washington State](#) for non-healthcare setting outbreaks.
- Do not need to interview if more than 14 days from onset or positive test result.
- Complete a case investigation, currently using a short form. Refer to the COVID-19 guideline for current confirmed and probable case definitions:
<https://www.doh.wa.gov/Portals/1/Documents/5100/420-107-Guideline-COVID-19.pdf>
- Interview each case or their proxy if appropriate (death, severe illness, <18 years old).
- A professional interpreter or fluent bilingual staff member should always be used if the case is not comfortable completing the interview in English.
- Confirm that infection prevention measures are in place if the case is in a healthcare facility or congregate setting, particularly a long-term care facility or an institution.
- Gather other important information:
 - Place of work/school attended.
 - Date of symptom onset, and first symptom(s): fever (if so, highest measured temperature), cough, pneumonia, chills, rigors, headache, myalgia, sore throat, nausea, vomiting, diarrhea, fatigue, congestion or runny nose, shortness of breath, difficulty breathing, or new olfactory or taste disorder.¹
 - Severity of illness (hospitalized overnight, admitted to ICU) or if fatal
 - During exposure period: Any travel, work, or visit to a high-risk setting or social events during the 14 days before symptom onset.
 - During contagious period: Any travel, work, or visit to any high-risk settings (including healthcare and high-risk congregate settings) or social event. If such a setting is identified, determine if infection prevention measures are in place.
 - Determine if person is part of a cluster, particularly in a congregate setting
 - For fatal or severe cases, if available use electronic records to determine chronic medical or other predisposing conditions
- If the person has questions about COVID-19 vaccine, refer them to the website: www.CovidVaccineWA.org, or send an email to: covid.vaccine@doh.wa.gov.

¹ Symptom onset is defined as the date on which symptoms first began, including non-respiratory symptoms (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html>)

- People diagnosed with COVID-19 should be told to notify all their household and other close contacts to:
 - Immediately self-quarantine and follow quarantine instructions: [What to do if you were potentially exposed to someone with COVID-19](#); and
 - Get tested 5 to 7 days from last exposure.
- Provide person with health education regarding COVID-19, infection prevention and isolation requirements, following “[What to do if you have confirmed or suspected coronavirus disease](#) (COVID-19)”. Self-isolate at home, including from household members.
- Assess all cases for referral to case management regarding needs for food, thermometer, medications, personal care items, healthcare, communication methods (e.g. phone), social networks, or safe place to stay for isolation.
- Following interview completion, consider sending the case a text, email or written letter with “[What to do if you have confirmed or suspected coronavirus disease](#) (COVID-19)” and
- Ensure a daily monitoring; consider enrollment in a daily monitoring system, such as Sara Alert, for duration of isolation.
- As feasible, attempt three phone call attempts and one text message at least four hours apart.
- If contact by phone is not successful and if resources permit, an in-person visit by trained local staff may be considered to facilitate the interview.
Note: appropriate personal protective equipment and safety measures must be taken for in-person visits.

2.2 Suspect Cases

Initiate case investigation as local health jurisdiction resources permit. An individual with positive serology who is symptomatic should get tested.

Process:

- As local health jurisdiction resources allow, initiate case investigation following receipt of a positive serologic test result being reported to the health jurisdiction
- Complete a case investigation interview using the short form on CREST or WDRS
- Depending upon the case’s onset date, public health actions including isolation and contact investigation may no longer be appropriate.
- If an individual has previously been investigated as a probable or confirmed case, there is no need to initiate additional investigation upon receipt of a serology result.

3 Contact Investigation

Beginning November 30th, 2020, cases are encouraged to notify their close contacts² with potential exposure and provide a guidance document: [What to do if you were potentially exposed to someone with COVID-19](#). As feasible, prioritize contact interviews to investigate clusters and high-risk settings. Initiate contact investigation within 1 day of identifying household and close contacts³ during case investigation.

Refer to **Table 1** below for summarized recommendations.

NOTE: Guidance differ for contacts who are healthcare workers (HCW). For guidance for asymptomatic exposed HCW, including return to work and mitigation of staff shortages see: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html>
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html>

Process:

- If feasible, determine the potential infectious period for the COVID-19 case or alternatively have the case notify their close contacts⁴ with potential exposure and provide a guidance document: [What to do if you were potentially exposed to someone with COVID-19](#):
 - For **symptomatic cases**, starting two days before the case's first symptom until initiation of isolation, ask the case for a list of all contacts and

² Close contact is generally defined as **1)** being within 6 feet for a cumulative total of 15 minutes or more over a 24-hour period* starting from two days before illness onset (or for asymptomatic patients, two days prior to test specimen collection) until the time the patient is isolated, regardless of mask use, *except* for healthcare workers using appropriate protection; **OR 2)** a single intense exposure (e.g., kissing, exposure to aerosolized secretions). However, it depends on the exposure level and setting; for example, in the setting of an aerosol-generating procedure in healthcare settings without proper PPE, this may be defined as any duration contact. Data are insufficient to precisely define a duration of exposure that constitutes prolonged exposure and thus a close contact.

•*According to CDC, individual exposures added together over a 24-hour period (e.g., three 5-minute exposures for a total of 15 minutes). Data are limited, making it difficult to precisely define "close contact;" however, 15 cumulative minutes of exposure at a distance of six feet or less can be used as an operational definition for contact investigation. Factors to consider when defining close contact include proximity (closer distance likely increases exposure risk), the duration of exposure (longer exposure time likely increases exposure risk), whether the infected individual has symptoms (the period around onset of symptoms is associated with the highest levels of viral shedding), if the infected person was likely to generate respiratory aerosols (e.g., was coughing, singing, shouting), and other environmental factors (crowding, adequacy of ventilation, whether exposure was indoors or outdoors). Because the general public has not received training on proper selection and use of respiratory PPE, such as an N95, the determination of close contact should generally be made irrespective of whether the contact was wearing respiratory PPE. At this time, differential determination of close contact for those using fabric face coverings is not recommended.

<https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/appendix.html>

•Note that transient interactions, such as walking by a person with COVID-19, are not thought to constitute an exposure.

locations where the case spent time. Record each contact's name, phone number and date of birth.

- For **asymptomatic cases**, starting two days before the case's specimen collection date until isolation, ask the case for a list of all contacts and locations where the case spent time. Record each contact's name, phone number and date of birth.
- Initiate contact investigation:
 - **Household contacts:** investigate at the time of the case interview, whenever possible. If it is not possible to reach them at the time of case interview, initiate contact investigation within 1 day of identification of their contact status.
 - **Non-household close contacts:** initiate investigation within one day of identification of their contact status.
- Collect key variables including identifiers, contact information, occupation, etc. and assess for symptoms for each contact.
- A professional interpreter or fluent bilingual staff member should always be used if the person is not comfortable completing the interview in English.
- A minimum of three phone contact attempts should be made at least four hours apart. In addition, at least one text message should be sent.
- If contact by phone is not successful, an in-person visit by trained local staff should be considered to facilitate the interview. Note: appropriate personal protective equipment and safety measures must be taken for in-person visits.
- Assess all contacts for referral to testing and case management.
- If **contact is symptomatic:**
 - Treat this individual as a probable case and complete the probable case investigation process. For contacts of probable cases other than antigen-positive, can limit investigation to household contacts and contacts with substantial exposure to confirmed or antigen-positive cases.
 - Explain health education regarding COVID-19, infection prevention and isolation per "[What to do if you have confirmed or suspected coronavirus disease \(COVID-19\).](#)" Self-isolate at home, including from household members.
 - Connect to testing. Explain that a negative test cannot rule out COVID-19 infection. If more than 14 days have elapsed since last exposure, testing and isolation are not needed.
 - Ensure daily monitoring; consider enrollment in a daily monitoring system, such as Sara Alert, for duration of quarantine.

- If contact is asymptomatic:
 - Provide health education regarding COVID-19, infection prevention and quarantine per “[What to do if you were potentially exposed to someone with confirmed coronavirus disease](#) (COVID-19)”
 - Following interview completion, send a text, email or written letter with [What to do if you were potentially exposed to someone with confirmed coronavirus disease](#) (COVID-19)”
 - Ensure a daily touch base; consider enrollment in a text monitoring system for duration of quarantine, such as Sara Alert. Inform household contacts that if they cannot maintain distancing from the case, their quarantine period will start with the isolation of the case.
 - Provide information under Section 5.2 and Table 2 (Contacts), including quarantine recommendation for fully vaccinated persons.
 - As of 2/10/2021, persons who are fully vaccinated (≥ 2 weeks from final dose) **and** who are within 3 months of final dose **and** who remained asymptomatic since their current exposure **and** who are not inpatients or healthcare setting residents are not required to quarantine. See Section 5.2 and Table 2 for details.
- According to CDC, “A person who has clinically recovered from COVID-19 and then is identified as a contact of a new case *within* 3 months of symptom onset of their most recent illness does not need to be quarantined or retested for SARS-CoV-2. However, if a person is identified as a contact of a new case three months or more *after* symptom onset, they should follow quarantine recommendations for contacts.”
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html>

4 Individuals being tested, pending results

At time the person seeks clinical specimen collection for testing, the clinician will provide information on isolation and quarantine to the patient.

Process:

- Physicians should provide information on isolation and quarantine to patients at the time of testing. An individual being tested should notify their household contacts of potential exposure and recommend they quarantine apart from the person being tested. Contacts should self-monitor and seek testing and care if symptoms develop. Distribute adequate guidance to the household contacts: [What to do if you were potentially exposed to someone with confirmed coronavirus disease](#) (COVID-19).
- While waiting for test results:
 - Symptomatic persons: Self-isolate, including from others in the household.
 - Asymptomatic close contacts: Self-quarantine. Continue quarantine through day 7 from last exposure if asymptomatic with a negative test (PCR, molecular amplification or antigen test) collected starting on day 5 of the quarantine period

or through day 10 from last exposure if asymptomatic without a test. In either situation continue symptom monitoring through day 14 from last exposure; if symptoms develop the person should resume quarantine and contact their healthcare provider.

- If the test result is positive, then follow the confirmed case and contact process above including non-household contact investigation.

5 Isolation or quarantine

Note: Symptom-based strategy, rather than test-based strategy, is recommended for ending isolation or quarantine. However, for persons who are severely immunocompromised, a test-based strategy could be considered to discontinue isolation.

Refer to **Table 2** below for summarized recommendations.

5.1 Cases:^{5,6}

- a. Patients with *mild to moderate illness* (no shortness of breath, no abnormal chest imaging) who are not severely immunocompromised can end precautions and return to normal activities including work when:
 - At least ten days have passed since symptom onset AND
 - At least 24 hours have passed with no fever without fever-reducing medication AND
 - Symptoms have improved*

**Loss of taste and smell may persist for weeks or months after recovery and need not delay the end of isolation*
- b. An asymptomatic case with lab positive test who is not immunocompromised can end isolation after:
 - At least ten days after the date of the first specimen was taken that tested positive.
 - No subsequent illness.
- c. Persons with *severe to critical illness* or who are severely immunocompromised⁷ can end precautions and return to normal activities including work when:

⁵ <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/end-home-isolation.html>

⁶ Based on current evidence, persons with mild to moderate illness may shed replication-competent SARS-CoV-2 for up to ten days following symptom onset. Persons with severe COVID-19 or immunocompromised persons may shed replication-competent virus for up to 20 days. Detection viral RNA does not necessarily indicate presence of infectious virus. Incubation period ranges from 2-14 days. (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html>)

⁷ Severe immunocompromised includes currently receiving chemotherapy for cancer, untreated HIV infection with CD4 count < 200, combined primary immunodeficiency disorder, or receipt of prednisone >20mg/day for more than 14 days. (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/disposition-in-home-patients.html>)

- At least 20 days have passed since symptom onset or first positive test, whichever is earlier AND
- At least 24 hours have passed with no fever without fever-reducing medication AND
- Symptoms have improved

Note: A limited number of persons with severe illness may produce replication-competent virus beyond 10 days, that may warrant extending duration of isolation for up to 20 days after symptom onset. Severe illness or those who are severely immunocompromised may remain infectious no longer than 20 days after their symptoms began.

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html>

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/return-to-work.html>

5.2 **Contacts:**^{8,9,10}

Refer to **Table 2**.

- a. Vaccinated Contact with an exposure to someone with suspected or confirmed COVID-19 are **not** required to quarantine if they meet *all* of the following criteria:
 - Are fully vaccinated (i.e., ≥ 2 weeks following receipt of the second dose in a 2-dose series, or ≥ 2 weeks following receipt of one dose of a single-dose vaccine); **and**
 - Are within 3 months following receipt of the last dose in the series; **and**
 - Have remained asymptomatic since the current COVID-19 exposure; **and**
 - Are not inpatients or residents in a healthcare setting.

NOTE:

- Fully vaccinated person who do not quarantine should still watch for symptoms of COVID-19 for 14 days following an exposure.
- If develop symptoms, seek a healthcare professional for COVID-19, including SARS-CoV-2 testing, if indicated.
- Continue to follow all travel, masking, and social distancing recommendations.
- Vaccinated inpatients and residents in a healthcare setting should continue to quarantine following an exposure.

- b. Unvaccinated Contact who **remains asymptomatic** throughout duration of quarantine:

⁸ <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/end-home-isolation.html>

⁹ <https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-options-to-reduce-quarantine.html>

¹⁰ <https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html#phrecs>

1. Stay in quarantine for 14 days after your last contact. **This is the safest option.** Monitor your symptoms during this time, and if you have any COVID-19 symptoms during the 14 days, get tested. Certain high-risk settings or groups **should** use the 14-day quarantine option:
 - People who have recently been in countries where the new variant of the SARS-CoV-2 virus, 501Y.V, has been identified (<https://www.doh.wa.gov/Emergencies/COVID19/Travel>)
 - People who work or stay in an acute or long-term healthcare setting,
 - People who work or stay in a correctional facility,
 - People who work or stay in a shelter or transitional housing
 - People who live in communal housing such as dormitories, fraternities or sororities
 - People who work in crowded work situations where physical distancing is impossible due to the nature of the work such as in a warehouse or factory
 - People who work on fishing or seafood processing vessels
2. If this is not possible, stay in quarantine for 10 days after your last contact, without additional testing. If you have any COVID-19 symptoms during the 10 days, stay in quarantine the full 14 days and get tested. Keep watching for symptoms until day 14.
3. Under special circumstances it may be possible to end quarantine after 7 full days beginning after your last contact *and* after receiving a negative result from a test (get tested no sooner than 48 hours before ending quarantine.) *This will depend on availability of testing resources.* Keep watching for symptoms until day 14.

NOTES:

- Consult with your local health jurisdiction to determine the best option for your individual circumstances.
- If the contact lives with or cares for someone who has COVID-19, and cannot avoid close contact, the start of their quarantine will be the date the person with COVID-19 ends isolation (i.e. if the case becomes ill or tested positive for COVID-19 on Day zero, the case ends isolation on Day ten, and the contact starts quarantine).
- If a case has not been able to isolate from the household members, the contacts start their quarantine period from the end of the case's isolation period.
- Note that either of these options will give a small residual post-quarantine transmission risk.

c. Contact who **develops symptoms** during quarantine:

- Connect to testing. Explain that a negative test cannot rule out COVID-19 infection until day 7 or later from last exposure.

- If testing is not done, isolate for 10 days from onset of symptoms.
- If the person tests positive, they are a lab-positive case and should isolate for 10 days past the earliest date of symptom onset or positive test collection date.

For example:

- If the close contact develops symptoms on day 2 of quarantine, they would initiate a 10-day isolation starting from symptom onset (for a combined 12 days of 2 days of quarantine and 10 days isolation).
- If the close contact tests positive on day 2 of quarantine, they would isolate for 10 days past the positive test collection date (for a combined 12 days of 2 days of quarantine and 10 days isolation).

6 Reinfection: Investigation and re-entering isolation or quarantine

CDC has released criteria for investigating suspected SARS-CoV-2 reinfection: <https://www.cdc.gov/coronavirus/2019-ncov/php/invest-criteria.html>, and SARS-CoV-2 reinfection case investigation form: https://www.cdc.gov/coronavirus/2019-ncov/downloads/php/CIP_ICR_508.pdf

DOH definitions for reinfection and information for genome sequencing is available: <https://www.doh.wa.gov/Portals/1/Documents/5100/420-107-Guideline-COVID-19.pdf>

Refer to **Tables 3** below for summarized recommendations.

6.1 Suspect reinfection: investigation, isolation and quarantine:^{11,12,13}

See the reinfection guidance

6.2 Investigation process and data collection for suspected case of reinfection:

- a. Conduct routine case interview.
- b. Collect following information:
 - Test type and retesting results
 - If the positive is from a PCR test, obtain the Ct value if available.
 - If the positive is from an antigen test, try to get a PCR test on that specimen or on a new specimen collected as soon as possible regardless of symptoms
 - Any additional testing information (such as results for influenza, viral panel, etc.)
 - The initial positive SARS-CoV-2 report. Determine if the initial positive specimen has already been sequenced; these sequencing results can be found in the external data question package in WDRS. If sequencing was not performed on

¹¹ <https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html>

¹² <https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html>

¹³ <https://www.cdc.gov/coronavirus/2019-ncov/php/invest-criteria.html>

the first specimen, determine if any previous SARS-CoV-2 positive samples from the patient are still available and ask the laboratory to hold them.

- Clinical information related to both the initial and current positive tests, including if appropriate a current an infectious disease consult.
- Recent risk factors for exposure.
- Entering data into WDRS:
- Currently, a second investigation cannot be entered into WDRS.
- A new event can only be created in WDRS if whole genome sequencing results indicate reinfection. Save information locally until WDRS data entry.
- If there is no sequencing result, put a note in WDRS that reinfection is suspected and whether the case investigation is complete. In the future there will be a new wizard in WDRS that will be attached to the original event, allowing capture of the investigation data

6.3 Quarantine of person recovered from laboratory-diagnosed SARS-CoV-2 infection with subsequent re-exposure:^{8,9}

Accumulating evidence supports that people who have recovered from COVID-19 do not need to undergo repeat quarantine in the case of another COVID-19 exposure within 3 months of their initial diagnosis.

Evidence does not indicate the definitive absence of re-infection during this period, only that risks of potential SARS-CoV-2 transmission from recovered persons are likely outweighed by the personal and societal benefits of avoiding unnecessary quarantine.

- Asymptomatic persons who has had close contact with someone with suspected or confirmed COVID-19 and meets all of the following criteria:
 1. Has recovered from laboratory-confirmed (PCR or antigen) SARS-CoV-2 infection and has already met criteria to end isolation **AND**
 2. Is *within* the first 3 months following the onset of symptoms of their initial confirmed infection, or within the first 3 months of their first positive viral test if they were asymptomatic during initial infection **AND**
 3. Has remained asymptomatic since the new exposure.

Does not require quarantine or repeat testing for SARS-CoV-2 in the context of this new exposure.

- Symptomatic persons who has had close contact with someone with suspected or confirmed COVID-19 and meets all of the following criteria:
 1. Has recovered from laboratory-confirmed (PCR or antigen) SARS-CoV-2 infection and has already met criteria to end isolation.

2. Is *within* the first 3 months following the onset of symptoms of their initial confirmed infection, or within the first 3 months of their first positive viral test if they were asymptomatic during initial infection.
3. Has or develops new symptoms consistent with COVID-19 within 14 days of the new exposure.
4. Other causes for symptoms have been ruled out.

Retest for SARS-CoV-2 infection. **Isolate** until again meeting routine criteria for discontinuation of isolation.

- Persons identified as close contact of a new lab-positive case ≥ 90 days *after* symptom onset, they should follow quarantine recommendations for contacts.

7 Websites

- DOH COVID-19 paper-based form:
<https://www.doh.wa.gov/Portals/1/Documents/5100/420-110-ReportForm-COVID19.pdf>
- CDC's guidance of developing a COVID-19 Case Investigation & Contact Tracing Plan:
<https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/overview.html>
- Essential Critical Infrastructure Workers designated in the Governor Inslee's Proclamation.
<https://www.governor.wa.gov/sites/default/files/WA%20Essential%20Critical%20Infrastructure%20Workers%20%28Final%29.pdf>
- WADOH health education "What to do if you have confirmed or suspected COVID-19"
<https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/COVIDcasepositive.pdf>
- CDC "When You Can be Around Others After You Had or Likely Had COVID-19"
<https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/end-home-isolation.html>
- CDC "Clinical Questions about COVID-19: Questions and Answers"
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html>
- CDC "Duration of Isolation and Precautions for Adults with COVID-19"
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html>
- CDC "When to Quarantine"
<https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/quarantine.html>
- CDC "Options to Reduce Quarantine for Contacts of Persons with SARS-CoV-2 Infection"
<https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-options-to-reduce-quarantine.html>
- CDC "Criteria for Return to Work for Healthcare Personnel with SARS-CoV-2 Infection (Interim Guidance)"
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/return-to-work.html>
- CDC "Interim U.S. Guidance for Risk Assessment and Work Restrictions for Healthcare Personnel with Potential Exposure to COVID-19"
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html>
- CDC "Strategies to Mitigate Healthcare Personnel Staffing Shortages"
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html>
- CDC "Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19)"
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>
- CDC "Investigative Criteria for Suspected Cases of SARS-CoV-2 Reinfection (ICR)"
<https://www.cdc.gov/coronavirus/2019-ncov/php/invest-criteria.html>
- CDC "SARS-CoV-2 Reinfection Case Investigation Form"
https://www.cdc.gov/coronavirus/2019-ncov/downloads/php/CIP_ICR_508.pdf

8 Table 1: Case and Contact Investigation Process

Case Investigation			
Who	When	Data Processing	Prioritization
Confirmed <ul style="list-style-type: none">(+ PCR or other molecular test) Probable <ul style="list-style-type: none">Antigen +Compatible clinical symptoms AND epi-link, with no PCR or antigen test result.Death certificate with no PCR or antigen test result.	Initiate case investigation within 1 day of notification of positive laboratory test report or death report.	Use CREST, WDRS, or an alternative method. Option to use COVID-19 WDRS form	Prioritize investigations of cases who are: <ul style="list-style-type: none">Tested, diagnosed or exposed in the past 6 daysAt increased risk for severe illnessPart of a cluster of illnesses, particularly in a high-risk setting (institution, hospital, long-term care, mental health, rehab, school, dialysis unit, corrections, shelter).Do not interview more than 14 days from onset or positive test result.
			Suspect reinfection:
			<ul style="list-style-type: none">Based on currently available information, the consideration of reinfection should be prioritized when a person has a positive PCR or antigen (not antibody) result more than 90 days from their previous positive result.Reinfection appears to be uncommon within 90 days of initial infection, however it is possible if a person tests positive 45-90 days after their initial positive result.Refer to main guideline and Table 3 for investigating suspect reinfection.
Contact Investigation			
Who	When	Data Processing	Process
As feasible, prioritize contacts involved in clusters and high-risk settings. As feasible, investigate contacts of Confirmed and laboratory Probable cases (household and non-household close contacts)	Initiate contact investigation within 1 day of identification of household and contacts of Confirmed and all	Case will generally provide contacts with information about quarantine. When feasible, use CREST to conduct contact interview. Alternatively,	Determine the potential infectious period for the COVID-19 case: <ul style="list-style-type: none">For symptomatic cases, starting 2 days before the case’s first symptom until initiation of isolation, ask the case for a list of all contacts and locations where the case spent time. Record each contact’s name, phone number and date of birth.For asymptomatic cases, starting 2 days before the case’s specimen collection date until initiation of isolation, ask the case for a list of all contacts and locations where the case spent time. Record each contact’s name, phone number and date of birth.
			Household contacts: investigate at the time of case interview, whenever possible. If not possible to reach them at time of case interview, initiate contact investigation within one day of identification of their contact status.

<p>If resources are available, for epi-link/symptomatic or death certificate Probable cases, can limit contact investigation to household and intimate contacts.</p>	<p>Probable cases.</p>	<p>data should be entered or rostered into the CREST within 24 hours of completing the contact interview if done.</p>	<p>Non-household close contacts: initiate investigation within 1 day of identification of contact status.</p> <p>During periods of high burden of disease, cases will inform contacts of quarantine and testing recommendations.</p> <p>Symptomatic contact:</p> <ul style="list-style-type: none"> • Complete probable case investigation. • Connect to testing. Explain that a negative test cannot rule out COVID-19 infection. <p>Asymptomatic contact:</p> <ul style="list-style-type: none"> • Encourage testing. Collect specimens relative to the person's exposure and incubation period. Ideally test at least five to seven days from last exposure and not sooner than 48 hours after first exposure; if more than 14 days have elapsed since last exposure testing is not needed. • Explain that a negative test cannot rule out COVID-19 infection and does not affect duration of quarantine. • If develops symptoms compatible with COVID-19, verify the symptoms and complete a probable case investigation. Connect to testing. • NOTE: For persons who remain asymptomatic following recovery from COVID-19, retesting (e.g., as part of a contact tracing investigation) is not necessary during the first three months after the date of symptom onset. <p>Ensure a daily monitoring; consider enrollment in a daily monitoring system, such as Sara Alert, for duration of isolation or quarantine.</p>
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9 Table 2A: Isolation or Quarantine

NOTE: Guidance differ for contacts who are healthcare workers (HCW) and non-HCW. For guidance for asymptomatic exposed HCW, including return to work and mitigation of staff shortages, please refer to:

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html>

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html>

Cases	
Who	Duration
Symptomatic cases with mild to moderate illness (no shortness of breath, no abnormal chest imaging) who are not severely immunocompromised	<p>Can end precautions and return to normal activities including work when:</p> <ul style="list-style-type: none"> At least ten days have passed since symptom onset; AND At least 24 hours have passed with no fever without fever-reducing medication; AND Symptoms have improved* (<i>*Loss of taste and smell may persist for weeks or months after recovery and need not delay the end of isolation</i>) <p>Refer above and Table 3 for investigation and re-isolation of suspect reinfection.</p>
Symptomatic cases with severe to critical illness or who are severely immunocompromised ¹⁴	<p>Can end precautions and return to normal activities including work when:</p> <ul style="list-style-type: none"> At least 20 days have passed since symptom onset AND At least 24 hours have passed with no fever without fever-reducing medication AND Symptoms have improved <p>For persons who are severely immunocompromised, a test-based strategy could be considered to discontinue isolation.</p>
Asymptomatic cases who is not immunocompromised	<ul style="list-style-type: none"> For persons who never developed symptoms, the date of first positive viral diagnostic test (PCR or antigen) for SARS-CoV-2 RNA should be used in place of the date of symptom onset.¹⁵ Discontinue isolation and other precautions at least ten days after the date of their first specimen collection that tested positive. If develop symptoms after positive test, follow guidance for symptomatic cases.

¹⁴ <https://www.cdc.gov/coronavirus/2019-ncov/hcp/disposition-in-home-patients.html>

¹⁵ <https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html>

Contacts^{16,17,18,19}**Summary:**

CDC continues to endorse quarantine for 14 days. Any quarantine shorter than 14 days balances reduced burden against a small possibility of spreading the virus.

For anyone who has had close contact with someone with COVID-19 should stay home for 14 days after their last exposure to that person. Home quarantine for 14 days is the safest way to protect the contact and others.

However, close contacts who meet the following criteria do NOT need to home quarantine:

- Someone who has been fully vaccinated within the last three months and shows no symptoms of COVID-19

Or:

- Someone who has COVID-19 illness within the previous 3 months and
- Has recovered and
- Remains without COVID-19 symptoms (for example, cough, shortness of breath)

Who	Duration
Vaccinated contacts who remain asymptomatic throughout the duration of quarantine.	<p>Are not required to quarantine if they meet <i>all</i> of the following criteria:</p> <ul style="list-style-type: none"> • Are fully vaccinated (i.e., ≥2 weeks following receipt of the second dose in a 2-dose series, or ≥2 weeks following receipt of one dose of a single-dose vaccine); and • Are within 3 months following receipt of the last dose in the series; and • Have remained asymptomatic since the current COVID-19 exposure; and • Are not inpatients or residents in a healthcare setting <p>NOTE:</p> <ul style="list-style-type: none"> • Fully vaccinated person who do not quarantine should still watch for symptoms of COVID-19 for 14 days following an exposure. • If develop symptoms, seek a healthcare professional for COVID-19, including SARS-CoV-2 testing, if indicated. • Continue to follow all travel, masking, and social distancing recommendations. • Vaccinated inpatients and residents in healthcare setting should continue to quarantine following an exposure.

¹⁶ <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/quarantine.html>

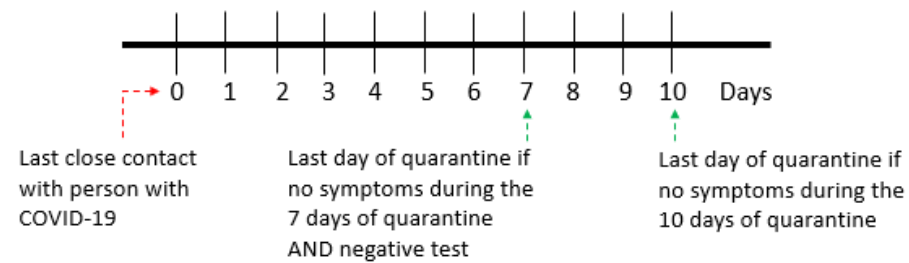
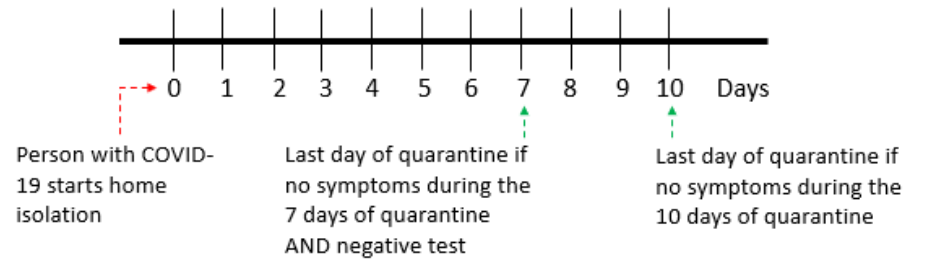
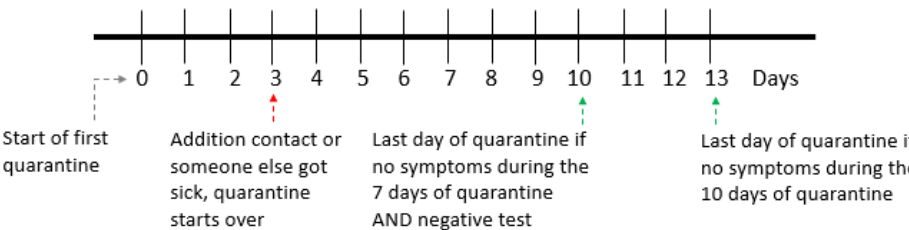
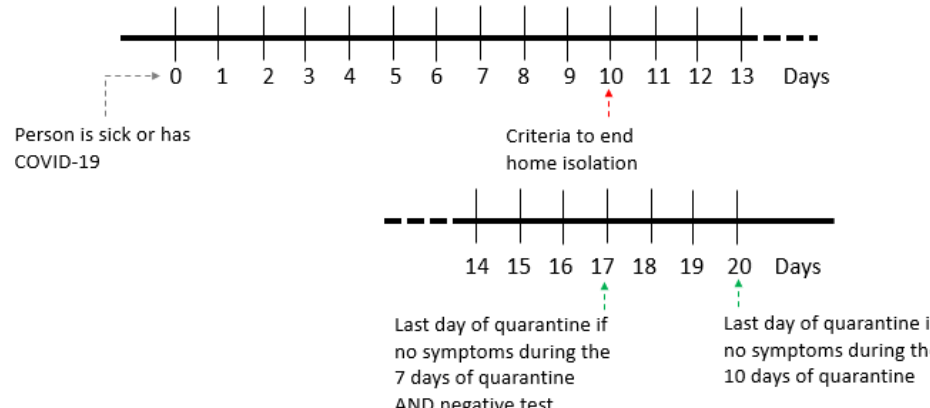
¹⁷ <https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-options-to-reduce-quarantine.html>

¹⁸ <https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html#phrecs>

¹⁹ <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/end-home-isolation.html>

<p>Unvaccinated contacts who remain asymptomatic throughout the duration of quarantine.</p>	<p>Ideally, quarantine 14 days. This should be the only option for those working or staying in high-risk setting such as an acute or long-term healthcare setting, correctional facility, shelter or transitional housing, communal housing such as dormitory, fraternity or sorority, crowded work situation where physical distancing is impossible due to the nature of the work such as in a warehouse or factory, fishing or seafood processing vessels, or if travel to area with variant virus. Two other options for quarantine duration:</p> <p>Option 1: End after Day 10 without testing and if no symptoms during daily symptom monitoring.</p> <p>Option 2: <i>When diagnostic testing resources are sufficient and available</i>, end after Day 7 if negative test result from specimen collected on Day 5 or later during the quarantine period, AND no symptoms during daily symptom monitoring. The specimen may be collected Day 5 or later.</p> <p>With both options, the person should continue daily symptom monitoring and adhere to non-pharmaceutical interventions (e.g., mask use, social distancing, respiratory hygiene) through Day 14, and isolate if symptoms develop.</p> <p><i>See below scenarios to determined when they can end quarantine.</i></p>
<p>Contacts who develop symptoms during quarantine</p>	<p>Connect to testing. Explain that a negative test cannot rule out COVID-19 infection. Follow case isolation recommendations.</p> <p>Close contact who develops symptoms should isolate for 10 days past symptom onset. If the person tests positive, they are a lab-positive case and should isolate for 10 days past the earliest date of symptom onset or positive test collection date, whichever is earlier.</p> <p>For example:</p> <ul style="list-style-type: none"> • If the close contact <i>develops symptoms</i> on day 2 of quarantine, they would then start a full 10-day isolation (for a combined 12 days of 2 days of quarantine and 10 days isolation). • If the close contact <i>tests positive</i> on day 2 of quarantine, they would isolate for 10 days past the positive test collection date (for a combined 12 days of 2 days of quarantine and 10 days isolation)

10 Table 2B: For unvaccinated asymptomatic contacts, scenarios to determine options to reduce quarantine²⁰

<p>Scenario 1: No further close contact.</p> <p>Will not have further contact or interactions with the case while they are sick (e.g., co-worker, neighbor, or friend).</p> <p>End of quarantine: Date of last close contact with case + 10 days.</p> 	<p>Scenario 2: Live with case but can avoid further close contact.</p> <p>No close contact with the case since case starts home isolation. For example, live with a case (e.g., roommate, partner, family member) isolating in separate bedroom.</p> <p>End of quarantine: Date case began home isolation + 10 days.</p> 
<p>Scenario 3: Additional close contact with case(s) during quarantine.</p> <p>Additional close contact with case, or another household member becomes a case. Restart quarantine from last day of close contact to most recent case.</p> <p>End of quarantine: Date of additional close contact with case + 10 days</p> 	<p>Scenario 3: Cannot avoid continue close contact with case.</p> <p>Continued close contact with case. For example, provide direct care to case, cannot isolate case in separate bedroom, or live in close quarters with case.</p> <p>End of quarantine: Date of case ends home isolation + 10 days.</p> 

²⁰ <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/quarantine.html>

11 Table 3: Suspect Reinfection or Re-exposure: Investigation and re-entering isolation and quarantine

Investigation of suspect reinfection and recommendation for re-isolation ^{21,22,23}	
Who	Process
Persons previously diagnosed with symptomatic COVID-19 who remain asymptomatic after recovery illness	<ul style="list-style-type: none"> Retesting is not recommended within 90 days of the first SARS-CoV-2 infection or illness if asymptomatic. If symptomatic within 180 days of initial infection, person should be evaluated for an alternative etiology. If no alternative etiology is identified, isolate and consider retesting If retest positive within 90 days from initial positive result, do not require isolation.
Persons who develop new symptoms consistent with COVID-19 ≥90 days after initial infection/illness	<ul style="list-style-type: none"> Remain in isolation while waiting for new test results. If test positive, consider infectious and remain self-isolation until meet criteria for discontinuation of isolation. Initiate contact tracing during the person's second period of symptoms, and routine quarantine of contacts.
Persons with detection of SARS-CoV-2 (RNA or antigen) ≥90 days since first SARS-CoV-2 infection	<ul style="list-style-type: none"> <i>Investigation:</i> Investigate as suspect reinfection case. <i>Isolation:</i> <ul style="list-style-type: none"> Should isolate while undergoing evaluation for reinfection. If reinfection is confirmed or remains suspected, remain self-isolation until they meet the criteria for ending isolation. <i>Contact tracing:</i> Initiate contact tracing during the person's second period of symptoms, and routine quarantine of contacts.
Persons with detection of SARS-CoV-2 RNA and symptoms consistent with COVID-19 within 45–90 days since first SARS-CoV-2 infection	<ul style="list-style-type: none"> <i>Investigation:</i> Investigate as suspect reinfection case. <i>Isolation:</i> Repeat isolation until they meet criteria for ending isolation. <i>Contact tracing:</i> Initiate contact tracing during their second period of symptoms, and routine quarantine of contacts.
A probable case without a lab positive test	<ul style="list-style-type: none"> Restart isolation if they develop new symptoms; OR Begin quarantine if they had close contact with a laboratory-positive case.

²¹ <https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html>

²² <https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html>

²³ <https://www.cdc.gov/coronavirus/2019-ncov/php/invest-criteria.html>

Quarantine of person recovered from laboratory-diagnosed SARS-CoV-2 infection with subsequent re-exposure: ^{18,19}	
Close contact <i>within</i> the first 3 months of symptom onset, or lab-positive test:	
Asymptomatic persons who has had close contact with someone with suspected or confirmed COVID-19 and meets all of the following criteria:	<ol style="list-style-type: none"> 1. Has recovered from laboratory-confirmed (PCR or antigen) SARS-CoV-2 infection and has already met criteria to end isolation. 2. Is <i>within</i> the first 3 months following the onset of symptoms of their initial confirmed infection, or within the first 3 months of their first positive viral test if they were asymptomatic during initial infection. 3. Has remained asymptomatic since the new exposure. <p>Does not require quarantine or repeat testing for SARS-CoV-2 in the context of this new exposure.</p>
Symptomatic persons who has had close contact with someone with suspected or confirmed COVID-19 and meets all of the following criteria:	<ol style="list-style-type: none"> 1. Has recovered from laboratory-confirmed (PCR or antigen) SARS-CoV-2 infection and has already met criteria to end isolation. 2. Is <i>within</i> the first 3 months following the onset of symptoms of their initial confirmed infection, or within the first 3 months of their first positive viral test if they were asymptomatic during initial infection. 3. Has or develops new symptoms consistent with COVID-19 within 14 days of the new exposure. 4. Other causes for symptoms have been ruled out. <p>Retest for SARS-CoV-2 infection. Isolate until again meeting routine criteria for discontinuation of isolation.</p>
Close contact 3 months or more <i>after</i> symptom onset, or lab-positive test:	
Persons identified as close contact of a new lab-positive case ≥90 days <i>after</i> symptom onset Clinically recovered persons, and identified as close contact of new case	<p>Follow quarantine recommendations for contacts.</p> <ul style="list-style-type: none"> • Follow general quarantine recommendations for close contacts. • Undergo repeat testing.

12 Updates

October 9, 2020: Case and contact investigation separated as new document with updated and expanded investigation processes, and isolation and quarantine recommendations. Tables 1-3 added to facilitate investigation and isolation/quarantine guidance.

November 2, 2020: Investigation of reinfection updated. Updated isolation period for contact becoming symptomatic case. Updated close contact definition as cumulative 15 minutes of contact over 24 hours.

November 7, 2020: Prioritized and abbreviated investigations initiated in accordance with CDC recommendations. Expanded investigation, isolation/quarantine, and contact tracing of reinfection.

December 11, 2020: Quarantine period ideally 14 days, optionally shortened to either 7 or 10 days; close contact notification can be done by the case.

December 23, 2020: Added travel risk for variant virus to quarantine section 5.2

February 10, 2021: Updated quarantine recommendations for vaccinated persons, section 5.2 and Table 2.